

1.0 Introduction

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) is responsible for implementing the final response action selected in the final *Corrective Action Decision/Record of Decision for Rocky Flats Plant (USDOE) Peripheral Operable Unit and Central Operable Unit (CAD/ROD)* (DOE 2006a) issued September 29, 2006, for the Rocky Flats, Colorado, Site (Site). Prior to the CAD/ROD, cleanup and closure activities were completed in accordance with the requirements of the *Final Rocky Flats Cleanup Agreement (RFCA)* (CDPHE et al. 1996). Under the CAD/ROD, two Operable Units (OUs) were established within the boundaries of the Rocky Flats property: the Peripheral Operable Unit (POU) and the Central Operable Unit (COU). The COU consolidates all areas of the Site that require additional remedial or corrective actions while also considering practicalities of future land management. The POU includes the remaining, generally unimpacted portions of the Site and surrounds the COU. The response action in the final CAD/ROD is no action for the POU and institutional and physical controls with continued monitoring for the COU. The Offsite Areas at Rocky Flats, known as OU 3, were addressed under a separate no-action CAD/ROD dated June 3, 1997.

The CAD/RODs for OU 3 and the POU determined that conditions in those OUs were suitable for unrestricted use. As a result, the U.S. Environmental Protection Agency (EPA) published a Notice of Intent for Partial Deletion (NOIPD) of the Rocky Flats Site (also known as the Rocky Flats Plant) from the National Priorities List (NPL) on March 13, 2007 (Volume 72 *Federal Register* page 11313 [72 FR 11313]), which was a proposal to delete the POU and OU 3 from the NPL. The NOIPD was based on the results of the remedial investigations leading to the CAD/ROD no-action remedies being selected for these OUs. The NOIPD stated that, because no hazardous substances occur in the OUs above levels that allow for unlimited use and unrestricted exposure, a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Five-Year Review was no longer required for these OUs. EPA subsequently published a Notice of Partial Deletion from the NPL for the POU and OU 3 on May 25, 2007 (72 FR 29276).

On July 12, 2007, most of the property outside the COU was transferred to the U.S. Department of the Interior for establishment of a national wildlife refuge managed by the U.S. Fish and Wildlife Service (USFWS). EPA certified that cleanup and closure of Rocky Flats was complete and that the COU remedy was operating properly and successfully, in accordance with requirements for DOE to transfer land to USFWS for establishing the refuge. DOE retained the COU and is responsible for implementing the CAD/ROD final response action and for ensuring that it remains protective of human health and the environment. The monitoring, surveillance, and maintenance activities—for which quarterly, annual, and Five-Year Review reports are issued—are included in the *Rocky Flats Legacy Management Agreement (RFLMA)* (CDPHE et al. 2012).

The RFLMA, signed March 14, 2007, and revised in 2012, superseded the RFCA. The RFLMA is a Federal Facility Agreement and Consent Order under CERCLA, the Resource Conservation and Recovery Act (RCRA), and the Colorado Hazardous Waste Act. The RFLMA is signed by DOE, EPA Region 8, and the Colorado Department of Public Health and Environment (CDPHE). The purpose of RFLMA is to establish the regulatory framework for RFLMA Attachment 2, “Legacy Management Requirements.”

RFLMA Attachment 2, Section 7.0, requires DOE to provide reports pertaining to the surveillance and maintenance of the remedy prescribed in the CAD/ROD on a calendar quarter and annual basis. The fourth-quarter report information is to be included in the annual report.

RFLMA Attachment 2, Section 7.2, specifies that the annual reports may include a summary for the previous quarter and shall include the following:

- A discussion of surface-water monitoring data
- A discussion of groundwater monitoring data
- A discussion of groundwater treatment system monitoring data
- A discussion of ecological sampling data
- A description of any adverse biological conditions
- A summary of actions taken in response to reportable conditions
- A summary of maintenance and repairs
- Inspection reports
- Verification of the *Environmental Covenant* (DOE and CDPHE 2011) and an evaluation of the effectiveness of institutional controls (ICs)
- Monitoring and maintenance required by the Original Landfill (OLF) Monitoring Report (see Table 3 and Section 6.1 of the final *U.S. Department of Energy Rocky Flats Site, Original Landfill Monitoring and Maintenance Plan* [OLF M&M Plan] [DOE 2009a])
- Monitoring and maintenance required by the Present Landfill (PLF) Monitoring Report (see Table 3 and Section 6.1 of the *Present Landfill Monitoring and Maintenance Plan and Post-Closure Plan, U.S. Department of Energy Rocky Flats Site* (PLF M&M Plan) [DOE 2014f])
- Assessments of analytical data, including laboratory audits
- Other conditions or actions taken that are pertinent to the continued effectiveness of the remedy

This calendar year (CY) 2014 Annual Report contains the summary for the fourth quarter of CY 2014.

LM prepared and continually updates the Rocky Flats Site Operations Guide (RFSOG) (DOE 2013b) as a framework to guide work at the Site. The RFSOG provides details on the surveillance and maintenance needed to satisfy the requirements of the CAD/ROD as well as best management practices (BMPs) at the Site. The RFSOG explains how DOE will fulfill its long-term surveillance and maintenance obligations at the Site.

While the specific BMPs are not subject to regulation under RFLMA, this annual report includes a discussion of some of the activities related to implementing BMPs to document the information for future reference and to provide a perspective of the work conducted over the year.

1.1 Purpose and Scope

The purpose of this report is to inform the regulatory agencies and stakeholders of the surveillance, monitoring, and maintenance activities being conducted at the Site. LM provides

periodic communications such as this report and communicates through other means such as Web-based tools and public meetings.

Topics covered in this annual report include Site operations and maintenance (Section 2.0) and environmental monitoring, including water and ecological monitoring (Section 3.0). Data management, data validation, and an assessment of data quality are also included in Section 3.0. References cited in this report are included in Section 4.0.

Supporting information is provided in a series of appendixes. Appendix A provides the hydrologic data and Appendix B provides the water-quality data. The fourth quarter of CY 2014 landfill inspection forms for the PLF and OLF are included in Appendix C. RFLMA and RFSOG data evaluation flowcharts are provided in Appendix D. Appendix E contains the *Technical Memorandum Regarding Instrumentation and Monitoring at the Rocky Flats OLF*. Appendix F consists of the Lawrence Berkeley National Laboratory reports received for selected site samples, and Appendix G contains the RFLMA contact records issued during CY 2014.

1.2 Background

Surveillance, maintenance, and monitoring activities are conducted according to RFLMA. RFLMA incorporates the following plans:

- The OLF M&M Plan (DOE 2009a)
- The PLF M&M Plan (DOE 2014f)

RFLMA Attachment 2 stipulates that DOE employ administrative procedures to control activities in accordance with the ICs and to meet quality assurance and quality control program requirements. Other Site procedures are established to guide work and implement BMPs. These procedures are referenced in the RFSOG and include the *Erosion Control Plan for the Rocky Flats Property Central Operable Unit* (DOE 2007a).

1.3 RFLMA Contact Records

This section provides a summary of the status of activities addressed by RFLMA contact records issued during 2014. RFLMA references the use of contact records to document CDPHE oral approvals of field modifications to implement approved response actions (see RFLMA paragraph 34). Excavation or soil disturbance activities that are subject to ICs must have prior regulatory review and approval pursuant to the Soil Disturbance Review Plan in RFLMA Attachment 2, Section 4.1, and results of consultation will be documented in contact records or written correspondence. RFLMA Attachment 2 also references the use of contact records to document the outcome of consultation related to addressing any reportable conditions (see RFLMA Attachment 2, Section 6.0). Finally, the *Rocky Flats Site Legacy Management Public Involvement Plan* (PIP), in RFLMA Appendix 2, also provides that a contact record of consultative process discussions between the RFLMA Parties will be made available to the Rocky Flats Stewardship Council and other interested stakeholders as early in the process as is practicable following signature approval by the parties. The PIP process to make contact records available is implemented by posting contact records on the Rocky Flats public website and by promptly notifying stakeholders (by email) that the contact record is posted.

The RFLMA Parties agreed, as documented in RFLMA Contact Record 2007-08, that DOE will document the status of actions or activities in RFLMA contact records from time to time and will include the documentation in RFLMA quarterly and/or annual surveillance and maintenance reports for tracking purposes. The RFLMA Parties also agreed that to facilitate the status reporting, contact records should include a short discussion of the anticipated actions or activities to close out the RFLMA contact record. Thus, RFLMA Contact Record 2007-08 and subsequent contact records will include the closeout discussion.

Under certain situations, activities previously approved in a contact record that has been closed out will need to be performed. A simple notification and approval process has been developed for these situations, which is documented in RFLMA Contact Record 2009-05. CDPHE may receive notification of and approve the activities over the phone or in person, with email follow-ups. The notification and approval of such work shall be reported in the next RFLMA annual report, in relation to the contact record that originally covered the work. This protocol is consistent with RFLMA paragraph 34.

Table 1 lists the RFLMA contact records issued in 2014 and their status at the end of 2014. The table also lists contact records that were issued from 2008 to the end of 2013, were discussed in the 2013 Annual Report, and were not closed by the end of 2013, and shows their status at the end of 2014. The table also lists email approval of activities previously covered by closed-out contact records. Appendix G contains copies of the 2014 contact records.

1.4 RFLMA Modifications

A minor modification to RFLMA Attachment 2 was proposed in Contact Record 2014-02 and the contact record was approved. The minor modification is to remove GS01 and GS03 from text, tables and figures for clarity and simplicity.

In accordance with RFLMA Attachment 2, Section 5.1, “Monitoring Surface Water,” DOE certified to CDPHE and EPA that as of September 29, 2013, WOMPOC on Woman Creek and as of September 28, 2013, WALPOC on Walnut Creek had been functioning as Points of Compliance (POCs) for 2 years. Therefore, surface water monitoring locations GS01 on Woman Creek and GS03 on Walnut Creek ceased being RFLMA POCs. The only Woman Creek POC is now WOMPOC, and the only Walnut Creek POC is now WALPOC, both inside the COU.

For background information on the changes to the POC locations, see Contact Record 2010-04, “[RFLMA] Attachment 2: Modification to Revise Monitoring Points,” and Contact Record 2012-03 “Minor Modification of [RFLMA] Attachment 1, ‘Site Map,’ and RFLMA Attachment 2, ‘Legacy Management Requirements.’”

The RFLMA Attachment 2 modification also included, among other things, updates to maps to reflect the surface water configuration after breaching the dams for Pond A-3 and the PLF Pond in 2012. The dam breach project is discussed in Contact Record 2011-07.

Table 1. Status of RFLMA Contact Records

Contact Record No.	Subject	Approval Date	Status as of December 31, 2014
2014-01	East Trenches Plume Treatment System reconfiguration	1/21/2014	Complete.
2014-02	Minor modification of RFLMA Attachment 2, "Legacy Management Requirements"	1/30/2014	Contact record will be closed when the identified minor modifications to RFLMA Attachment 2 are approved.
2014-03	Minor modification to PLF Monitoring and Maintenance Plan	2/18/2014	Complete.
2014-04	East Trenches Plume Treatment System reconfiguration and soil disturbance final approval	2/19/2014	Construction was completed in January 2015. Contact record will be closed when the post-construction reseeding has been performed and post-construction erosion controls are in place. Related to Contact Record 2014-01.
2014-05	Reportable condition for evaluation purposes for uranium at POC WALPOC	4/8/2014	Contact record will be closed when the results from the evaluation have been transmitted to CDPHE or as the RFLMA Party consultation related to this evaluation directs.
2014-06	Vinyl chloride results from the Present Landfill Treatment System effluent that triggered the consultative process	5/21/2014	Complete.
2014-07	Abandonment of Sentinel well 88104	7/21/2014	Contact record will be closed when the well is abandoned.
2014-08	Providing flexibility to the flow configuration at Solar Ponds Plume Treatment System as part of the ongoing optimization effort	7/18/2014	Complete.
2014-09	OLF East Perimeter Channel Soil Disturbance Review Plan update for regrading the East Perimeter Channel at the OLF	10/6/2014	Construction was completed in January 2015. Contact record will be closed when the post-construction reseeding has been performed and post-construction erosion controls are in place.
2014-10	Reportable condition for uranium 12-month rolling average at POC WALPOC	12/18/2014	Superseded by Contact Record 2015-01.
2013-02	Reportable condition at OLF	10/21/2013	Construction was completed in January 2015. Contact record will be closed when the post-construction reseeding has been performed and post-construction erosion controls are in place.
2013-03	Soil Disturbance Review Plan for regrading the East Perimeter Channel and associated diversion berms at the OLF	11/22/2013	Construction was completed in January 2015. Contact record will be closed when the post-construction reseeding has been performed and post-construction erosion controls are in place. Related to Contact Record 2013-02.
2011-04	Reportable condition for uranium at Point of Evaluation GS10	7/8/2011	Contact record serves as the plan and schedule for the evaluation of the reportable condition and will be closed when the evaluation is completed.

Table 1 (continued). Status of RFLMA Contact Records

Contact Record No.	Subject	Approval Date	Status as of December 31, 2014
2011-05	Update for reportable condition for uranium at Point of Evaluation GS10	10/4/2011	Contact record serves as the plan and schedule for the evaluation of the reportable condition and will be closed when the evaluation is completed. Related to Contact Record 2011-05.
2011-08	Reportable condition for americium-241 at Point of Evaluation GS10	12/23/2011	Contact record serves as the plan and schedule for the evaluation of the reportable condition and will be closed when the evaluation is completed.
2009-01	Phase II and III upgrades to the Solar Ponds Plume Treatment System	2/17/2009	Construction and post-construction revegetation and erosion controls are in place. Optimization of the upgrades and monitoring is ongoing. Contact record will be closed when testing is completed and as-built drawings are completed.
2008-06	Management of intercepted groundwater during Solar Ponds Plume Treatment System repair or maintenance activities	7/3/2008	Actions continuing.

The PLF M&M Plan was modified as approved in Contact Record 2014-03. This modification incorporated the RFLMA Attachment 2, Table 3, “Present and Original Landfill Inspection and Maintenance Requirements,” modification approved by CDPHE and EPA on February 2, 2013, as described in Contact Record 2012-03. The modification removed the landfill-specific vegetation and inspection requirements as recommended in the Third Five-Year Review Report. Landfill vegetation meets success criteria, and it will be monitored and managed under the sitewide vegetation and revegetation plans. The revised PLF M&M Plan was issued in December 2014.

In addition to the vegetation monitoring requirements, several other items were modified in the PLF M&M Plan, as follows:

- Update to Figure 2, “PLF Site Map,” which shows the location of the PLF within the COU to reflect the COU surface water configuration after completion of the dam breach projects in 2009 and 2012.
- Update to Figure 3, “PLF Surface Features,” to reflect the PLF Pond dam breach. The historic subsurface asbestos disposal location at the northeast end of the PLF cover was also added to Figure 3 for reference.
- Update to Figure 5, “PLF Seep Treatment System,” to reflect the PLF Pond (labeled as the East Landfill Pond) dam breach. Figure 5 also shows the RFLMA sampling location identified as NNG01, which replaced the sampling location identified as PLFPONDEFF, “Pond Sample Location,” as discussed in RFLMA Contact Record 2010-04.
- Changes to Appendix A, “Present Landfill Inspection Form,” to remove the vegetation inspection form and delete the figure “PLF Inspections,” which is redundant to Figure 3.

Several editorial changes and clarifications were included in the PLF M&M Plan minor modification.

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